



INDIANA

Introduction and General Description

Situated within the Corn Belt region of the Midwest, Indiana is heavily dominated by agriculture, with approximately 70 percent of the State's land area in farms. However, significant natural areas still remain on the landscape, from the "pothole" region of northeast Indiana with its natural lakes and wetlands, to the floodplain forested wetlands along the Muscatatuck, Patoka, and Kankakee Rivers, to the heavily wooded hills of south-central Indiana. The State is home to four national wildlife refuges (see map), which include large tracts of wetland, grassland, and forest communities, providing habitat for a diverse array of Federal trust resources. In addition, because such a large percentage of the State's original habitat base has been converted to other land uses, Indiana represents one of the best opportunities in the country for habitat restoration.

Habitats of Special Concern

A primary focus of the Partners for Fish and Wildlife Program in Indiana is the restoration of wetlands and associated uplands for migratory birds. In the northeast pothole region, this takes the form of wetland basins (marshes) surrounded by upland native prairie, which provides breeding and migration habitat for waterfowl such as mallard and blue-winged teal, and marsh birds

such as rails, bitterns, and herons.



Typical wetland "pothole."

In watersheds with large floodplain areas, such as the Kankakee, Patoka, and Muscatatuck Rivers, the focus is more on the restoration of bottomland hardwood wetlands, which provide the primary breeding habitat for wood ducks in Indiana, as well as migration and breeding habitat for neotropical migratory songbirds. In addition, the federally endangered Indiana bat utilizes riparian (streamside) forests for breeding, foraging, and migration habitat. Other unique efforts include restoration work on Fish Creek in northeast Indiana, which is home to the only remaining population of the Federally endangered white cat's paw pearly mussel.

Threats

Prior to European settlement, Indiana was a vast wilderness of lakes, rivers, wetlands, forests, and prairies, which harbored a great diversity of fish and wildlife species. The widespread clearing and drainage that followed settlement has dramatically altered the Indiana landscape, reducing the State's original 5.6 million wetland

acres by more than 85 percent, and native prairie and savanna by more than 99.9 percent. These large-scale conversions of native habitat had significant impacts on Indiana's fish and wildlife resources, particularly wetland and aquatic species and grassland dependent birds. Despite restoration efforts, wetlands continue to be lost at a rate that exceeds replacement, and undisturbed grassland habitat is a rarity on the landscape. In addition to direct loss, wildlife habitat, especially wetlands, can be degraded by contamination from agricultural and urban runoff, isolation from other habitats, and increased predation.

Conservation Strategies

With 97 percent of Indiana's land base in private ownership, a major portion of any successful habitat restoration effort must focus on fostering cooperation with private landowners. This is accomplished by targeting the following habitat types with a variety of restoration and enhancement techniques.

Wetlands

Wetlands provide habitat for nearly half of all migratory birds that occur in Indiana, and are an important habitat for many resident species as well. They also provide benefits which go beyond the scope of fish and wildlife habitat, including floodwater storage, water quality improvement, and groundwater recharge. The northeast Indiana pothole region is a primary focus for the Partners Program due to the high density of drained wetland basins and the large acreage of land retired under the USDA's Conservation Reserve Program. Restoration activities primarily involve restoring drained, depressional wetlands by breaking drainage tile, plugging drainage ditches, and constructing low earthen berms. Where possible, wetland complexes (groups of wetlands) are restored, creating a variety of wetland types in close proximity to provide for the diverse habitat needs of wetland wildlife. Costs for this type of wetland restoration average approximately \$400-500



per acre.

Along the floodplains of the larger river systems in Indiana, such as the Kankakee, Muscatatuck, Patoka, and Wabash, forested wetlands are a major focus of restoration activities. These areas provide important breeding and migration habitat for waterfowl,

neotropical migrant songbirds, and the Federally endangered Indiana bat. Reforestation techniques involve planting mainly 1-2 year-old nursery seedlings adapted to floodplain conditions, and controlling competing weed competition for at least 3 years. Costs for this practice average approximately \$300-400 per acre.



Grasslands

Many species of grassland dependent migratory birds have been declining in recent decades, due in large part to the loss of suitable grassland nesting habitat. Species such as bobolink, grasshopper sparrow, Henslow's sparrow, and upland sandpiper are forced to nest in less secure or isolated patches of habitat, which are subject to high rates of disturbance from mowing and nest predation. The Partners Program has worked with partners to help purchase seed drills, as well as cost-share directly with landowners to restore native prairie habitats. This work is focused in the northern and western portions of Indiana, and is often concentrated adjacent to restored or natural wetlands to provide nesting habitat for upland nesting ducks such as mallard and blue-winged teal. Costs vary widely, depending in large part upon the source of the seed, and can run from \$100-500 per acre.

Invasive Species

Invasive species are considered to be one of the major threats to the integrity of native terrestrial and aquatic ecosystems, as their aggressive growth habits crowd out native species and form dense single-species stands. The Partners Program has developed partnerships with private conservation organizations to help control invasive species on private lands. Control work is often labor intensive, and targeted species include purple loosestrife, common reed, reed canarygrass, garlic mustard, bush honeysuckle, buckthorn, and tall fescue. Costs for this type of work average \$100-300 per acre.



Outdoor Classrooms

The Partners Program in Indiana has been actively involved in environmental education, working with more than 40 schools and nature centers throughout the State to restore wetlands and native prairie for use in outdoor classroom settings. In addition, the Service's Bloomington Field Office, in conjunction with the Sierra Club Wetlands Project and the Indianapolis Zoo, developed the Integrated Environmental Curriculum on wetlands for use by teachers and other educators statewide.

Partners

Natural Resources Conservation Service
Farm Service Agency
National Fish and Wildlife Foundation
U.S. Environmental Protection Agency
Indiana Department of Natural Resources
Purdue University
Indiana University
Ball State University
Manchester College
Franklin College
15 Soil and Water Conservation Districts
9 County Parks and Recreation Departments
7 City Parks and Recreation Departments
20 Public School Corporations
Little Walnut Creek Conservancy District
Prairie Creek Conservancy District
Ducks Unlimited
Waterfowl USA
Pheasants Forever
Quail Unlimited
The Nature Conservancy
NiSource
Cope Environmental Center
Girl Scouts of America
Kosco Conservation Club
Pike Lumber Company
Putnam County Foundation
Greencastle Civic League
Historic Forks of the Wabash, Inc.
Friends of the Limberlost
Cinergy PSI
Indianapolis Power & Light Company
Pioneer Hi-Bred International, Inc.
Indiana Audubon Society
Shirley Heinze Environmental Fund
Community Alliance of the Far Eastside, Inc.
Friends of the White River
Wildlife Forever
7 Private Schools

Accomplishments

The Partners Program has been active in Indiana since 1988 and has worked with more than 2,000 landowners statewide.

Highlights include:

- < 1,025 wetlands restored totaling 5,897 acres.
- < 206 grassland restorations totaling 1,785 ac.
- < 116 bottomland hardwood reforestation projects totaling 1,231 acres.
- < Cooperation with nearly 100 partners, including Federal, State, and local agencies, and private organizations.
- < 70 habitat projects on school or park properties for use as outdoor classrooms.



Drained wetland just prior to restoration.



Same wetland 4 years after restoration.

Future Needs

Northeast Indiana

- < As many as 1 million acres of drained wetland exist in the northeast Indiana pothole region alone. Often these basins can be easily restored if interested landowners are provided with adequate incentives.
- < The Grand Kankakee Marsh once contained

15 percent (1 million acres) of Indiana's wetland acreage, but is now mostly drained. Numerous opportunities exist to restore wetlands, forests, and prairies.

CONTACT



Jeffrey Kiefer
Partners for Fish and Wildlife Program
U.S. Fish and Wildlife Service
620 South Walker
Bloomington, IN 47403-2121
812 334-4261 ext. 212 (Fax) 812 334-4273

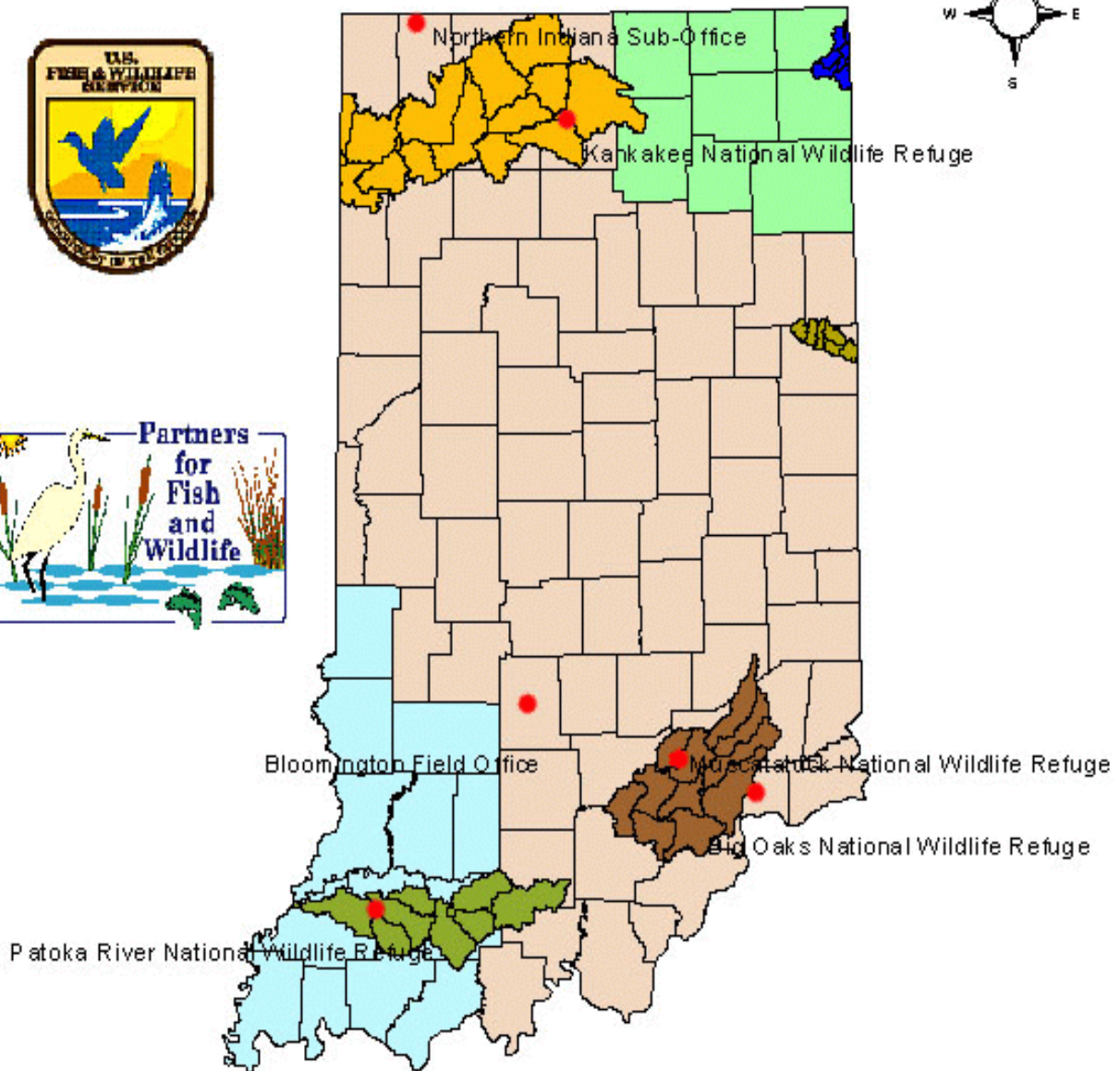
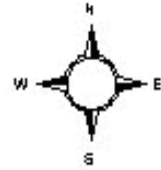
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Southern Indiana

- < A 13-county area identified as the **Southwestern Lowlands and Southern Bottomlands Natural Regions** in southwest Indiana offers one of the most outstanding opportunities to restore wetland habitat on private lands in Indiana. This area includes the lower Wabash River, western reaches of the White River and most of the Patoka River and Pigeon Creek drainages. Based on the Service's National Wetlands Inventory, over 1.1 million acres of wetlands could be restored in this area, mostly along river floodplains.

- < A 9-county area in southeastern Indiana has great wetland restoration potential. This area is known as the **Muscatatuck Flats and Scottsburg Lowland Sections of the Bluegrass Natural Region**. Over 505,000 acres of wetlands could be restored to bottomland hardwood forested wetlands, especially along the Muscatatuck River and the East Fork of the White River.

Partners for Fish and Wildlife Program Conservation Priority Areas in Indiana



 Kankee River Watershed

 Lower Wabash/White River Region

 Northeastern Indian Pothole Region

 Muscatatuck River Watershed

 Fish Creek Watershed

 Patoka River Watershed

 Limberlost/Loblolly Watershed